

REMARKS

I. Introduction

Claims 10, 11, and 13 to 22 are pending in the present application. In view of the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

II. Rejection of Claims 10, 11, 14 to 17, 19, and 20 Under 35 U.S.C. § 102(b) as Anticipated by Kawano et al.

Claims 10, 11, 14 to 17, 19, and 20 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,432,734 ("Kawano et al."). It is respectfully submitted that Kawano et al. does not anticipate the present claims for at least the following reasons.

It is "well settled that the burden of establishing a prima facie case of anticipation resides with the [United States] Patent and Trademark Office." Ex parte Skinner, 2 U.S.P.Q.2d 1788, 1788 to 1789 (Bd. Pat. App. & Inter. 1986). To anticipate a claim, each and every element as set forth in the claim must be found in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of Calif., 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). That is, the prior art must describe the elements arranged as required by the claims. In re Bond, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990).

Claim 10 relates to a magnetoresistive layer system and recites a magnetoresistive layer stack that works substantially on the basis of one of a GMR effect and an AMR effect, and a layer array for generating a magnetic field which acts upon the magnetoresistive layer stack, where the layer array is situated at least one of (a) on and (b) below a magnetoresistive region of the magnetoresistive layer stack and includes at least one hard magnetic layer and at least one soft magnetic layer. Claim 10 further recites that the at least one soft magnetic layer is adjacent to the at least one hard magnetic layer.

Claim 19 relates to a sensor element and recites a magnetoresistive layer system, in an environment of a magnetoresistive layer stack that works substantially on the basis of one of a GMR effect and an AMR effect, the

magnetoresistive layer system including a layer array for generating a magnetic field which acts upon the magnetoresistive layer stack, the layer array situated at least one of (a) on and (b) below a magnetoresistive region of the magnetoresistive layer stack and including at least one hard magnetic layer and at least one soft magnetic layer. Claim 19 further recites that the at least one soft magnetic layer is adjacent to the at least one hard magnetic layer.

The Final Office Action cites Figure 15 of Kawano et al. as allegedly illustrating the features recited in the present claims. In this regard, Figure 15 discloses a buffer layer 6 and a cap layer 7. Between the buffer layer 6 and the cap layer 7 is an "MR element" containing magnetic layers 1a, 2a, and 3a separated by nonmagnetic layers 4 and 5. See, e.g., col. 11, lines 44 to 49. Within the context of the present claims, the "MR element," i.e., layers 1a, 4, 2a, 5, and 3a, corresponds to a magnetoresistive layer stack that purportedly works on the basis of GMR effect. See, e.g., col. 2, lines 57 to 63. It is thus readily apparent that ***magnetic layers 1a, 2a, and 3a are part of the MR element.*** According to the present claims, the soft magnetic layer and the hard magnetic layer are part of a layer array, which acts upon and is situated at least one of on or below the magnetoresistive layer stack. As such, it is respectfully submitted that the magnetic layers 1a, 2a, 3a cannot constitute either of the at least one soft magnetic layer or the at least one hard magnetic layer as recited in the present claims.

Regarding buffer layer 6 and/or cap layer 7, even if these elements may be considered to be on or below the MR element, there is no indication or suggestion whatsoever that either of these elements contains at least one hard magnetic layer and at least one soft magnetic layer, the at least one soft magnetic layer being adjacent to the at least one hard magnetic layer, as recited in each of independent claims 10 and 19. As such, neither the buffer layer 6 nor the cap layer 7 constitutes a layer array having the features recited in independent claims 11 and 19, *i.e.*, a layer array for generating a magnetic field which acts upon the magnetoresistive layer stack, the layer array situated at least one of (a) on and (b) below a magnetoresistive region of the magnetoresistive layer stack and including at least one hard magnetic layer and at least one soft magnetic layer, the at least one soft magnetic layer being adjacent to the at least one hard magnetic layer. Indeed, Kawano et al. does not disclose, or even suggest this feature.

As indicated above, Kawano et al. does not, disclose, or even suggest, all of the features recited in any of claims 10 and 19. As such, it is respectfully submitted that Kawano et al. does not anticipate any of claims 10 and 19.

Claims 11 and 14 to 17 ultimately depend from claim 10 and therefore include all of the features recited in claim 10. As such, it is respectfully submitted that Kawano et al. does not anticipate these dependent claims for at least the same reasons set forth in support of claim 10.

Claim 20 depends from claim 19 and therefore includes all of the features recited in claim 19. As such, it is respectfully submitted that Kawano et al. does not anticipate claim 20 for at least the same reasons set forth in support of claim 19.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

**III. Rejection of Claims 10, 11, and 13 to 22
Under 35 U.S.C. § 102(b) as Anticipated by Sakakima et al.**

Claims 10, 11, and 13 to 22 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,111,782 ("Sakakima et al."). It is respectfully submitted that Sakakima et al. does not anticipate these claims for at least the following reasons.

The Final Office Action at page 2 points to various figures in of Sakakima as allegedly illustrating the features of the present claims. A substantial number of these figures do not even show adjacent magnetic layers. For example, Figures 1A and 1B illustrate that each of the magnetic layers 1 and 3 are plainly separated by non-magnetic layers 2. See col. 12, line 62 to col. 13, line 4. Further, the layers relied upon by the examiner are all part of, or at least incorporated into, **the magnetoresistive stack**. See, e.g., col. 17, lines 23 to 37. According the present claims, the soft magnetic layer and the hard magnetic layer are part of a layer array, which acts upon and is situated at least one of on or below the magnetoresistive layer stack. As such, it is respectfully submitted that magnetic layers 1 and 3 cannot constitute the at least one soft magnetic layer or the at least one hard magnetic layer as recited in the present claims. Moreover, there is no apparent basis for the Final Office Action's consideration of only "the first two or three layers of the device being the MR layer stack." In this regard, it is readily

apparent that the additional magnetic layers, e.g., the repeating pattern of at least layers 1 and 3, are also part of the magnetoresistive stack. See, e.g., col. 17, lines 23 to 37.

As indicated above, Sakakima et al. does not disclose, or even suggest, all of the features recited in any of claims 10 and 19. As such, it is respectfully submitted that Sakakima et al. do not anticipate any of claims 10 and 19.

Claims 11, 13 to 18, and 21 ultimately depend from claim 10 and therefore include all of the features recited in claim 10. As such, it is respectfully submitted that Sakakima et al. does not anticipate these dependent claims for at least the same reasons set forth in support of claim 10.

Claims 20 and 22 depend from claim 19 and therefore include all of the features recited in claim 19. As such, it is respectfully submitted that Sakakima et al. does not anticipate claims 20 and 22 for at least the same reasons set forth in support of claim 19.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

**IV. Rejection of Claims 10, 11, 13, 14, 17, and 19 to 22
Under 35 U.S.C. § 102(b) as Anticipated by Van Den Berg et al.**

Claims 10, 11, and 13 to 22 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,686,838 ("Van Den Berg et al."). It is respectfully submitted that Van Den Berg et al. does not anticipate these claims for at least the following reasons.

Referring to Figures 1 to 5, it is plainly apparent that Van Den Berg et al. does not disclose or suggest any two magnetic layers that are adjacent to one another. Referring to Figure 1, for example, magnetic layers 2, 6, and 10 are separated by non-magnetic layer 4 and coupling layer 8. In this regard, Van Den Berg et al. do not disclose, or even suggest, at least one soft magnetic layer that is adjacent to the at least one hard magnetic layer.

As indicated above, Van Den Berg et al. does not disclose, or even suggest, all of the features recited in any of claims 10 and 19. As such, it is respectfully submitted that Van Den Berg et al. does not anticipate any of claims 10 and 19.

Claims 11, 13, 14, 17, and 21 depend from claim 10 and therefore include all of the features recited in claim 10. As such, it is respectfully submitted that Van Den Berg et al. does not anticipate these dependent claims for at least the same reasons set forth in support of claim 10.

Claims 20 and 22 depend from claim 19 and therefore include all of the features recited in claim 19. As such, it is respectfully submitted that Van Den Berg et al. does not anticipate claims 20 and 22 for at least the same reasons set forth in support of claim 19.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

V. Conclusion

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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